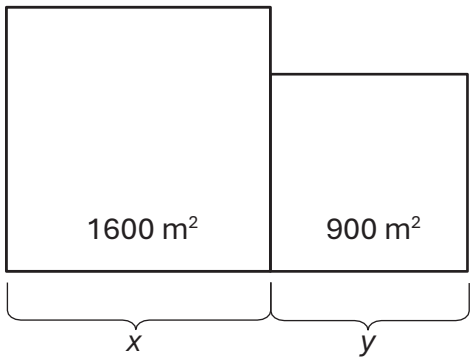
# Proficiency Test – Practice Questions

Department of Kinesiology, Okanagan College

## Instructions

Each of the 25 questions is followed by up to five suggested answers labeled a, b, c, etc. It is suggested not to use a calculator, as no calculators are permitted on the official proficiency exam.

1. Use the diagram below to answer the question.




The area of each square is given in the diagram. What is the value of $x + y$?

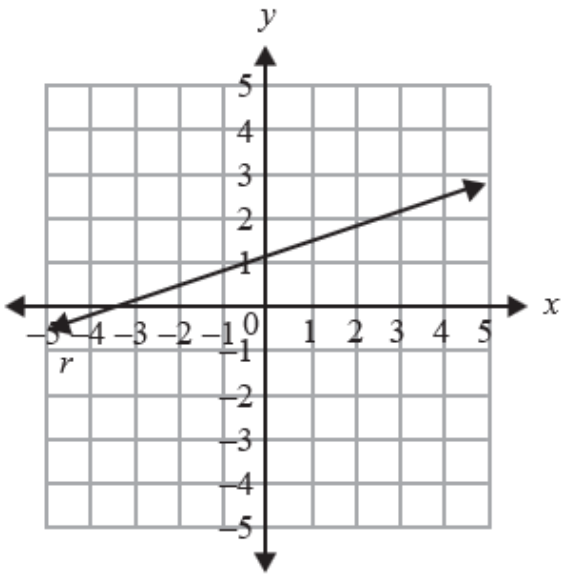
a. 30 metres
b. 40 metres
c. 70 metres
d. 120 metres

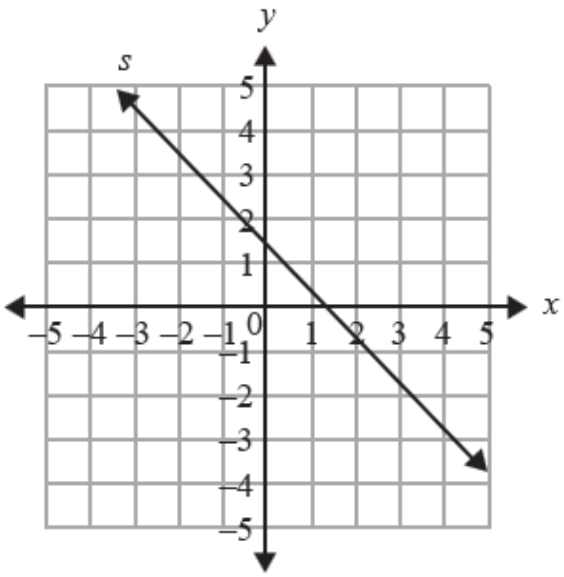
2. What is the value of the expression $-4\sqrt{25} + 4^3$?
   a. $32$
   b. $44$
   c. $84$
   d. $112$

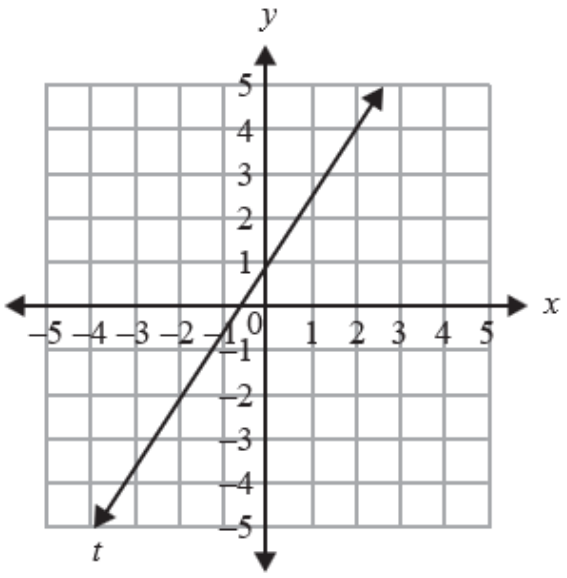
3. Identify the simplified form of the following expression:
   $(6x^4 + 4x^3 - 2x^2 + 5) - (3x^4 - 2x^3 + x + 4)$

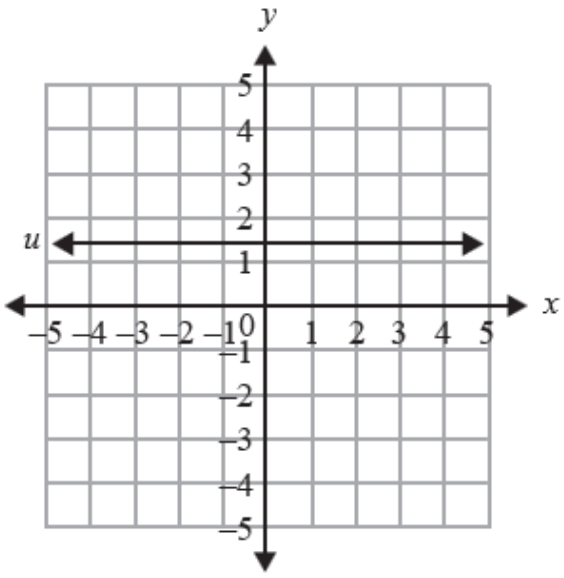
   a. $3x^4 + 2x^3 - 2x^2 + x + 1$
   b. $3x^4 + 2x^3 - 2x^2 - x + 9$
   c. $3x^4 + 6x^3 - 2x^2 + x + 1$
   d. $3x^4 + 6x^3 - 2x^2 - x + 1$

4. Use the graphs below to answer the question.



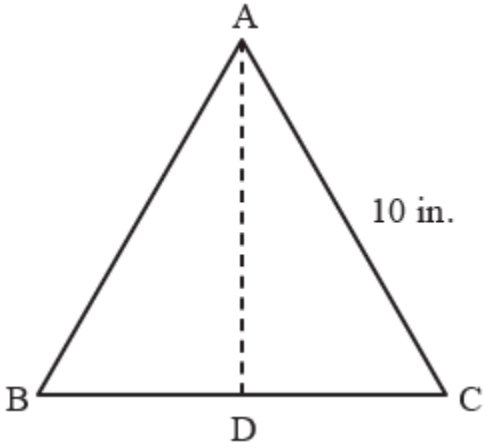




Which line shows a negative slope?

a. *r*
b. *s*
c. *t*
d. *u*

5. Use the diagram below to answer the question.




$\Delta ABC$ is equilateral and each side measures 10 inches (in.) Segment DC is equal to 5 in. What is the length of segment AD?

a. $5\sqrt{2}\ in.$
b. $5\sqrt{3}\ in.$
c. $10\sqrt{2}\ in.$
d. $10\sqrt{3}\ in.$

6. What is the simplest form of the following expression: $\frac{(2x^2+16x+14)}{(x^2-1)}$

a. $\frac{2(x+7)}{(x-1)}$
b. $\frac{(2x+2)(x+7)}{(x+1)(x-1)}$
c. $\frac{2(x+7)}{(x+1)}$
d. $\frac{2(x+1)(x+7)}{(x-1)(x-1)}$

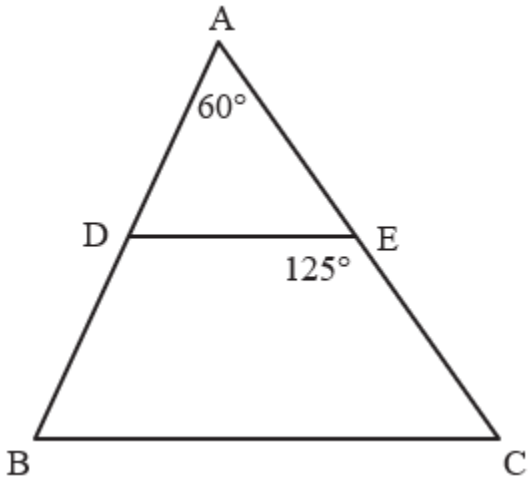
7. What is the value of $(\frac{1}{2})^{-2}$?
    a. $-4$
    b. $-\frac{1}{4}$
    c. $\frac{1}{4}$
    d. $4$

8. A line has a slope of $\frac{3}{4}$ and passes through the point $(-4, 2)$. Which represents the equation of the line written in standard form?
    a. $4x - 3y = -22$
    b. $-3x + 4y = 20$
    c. $4x - 3y = -18$
    d. $3x - 4y = -24$

9. The vertices of $\Delta ABC$ are $A(0, 0)$, $B(6, 0)$, and $C(3, 7)$. What type of triangle is $\Delta ABC$?
    a. Acute isosceles triangle
    b. Acute scalene triangle
    c. Right isosceles triangle
    d. Right scalene triangle

10. Which statement is true for a line that passes through points $(-2, 4)$ and $(3, 4)$?
    a. The line has a negative slope
    b. The line has a positive slope
    c. The line has an undefined slope
    d. The line has a zero slope

11. Use the diagram below to answer the question.



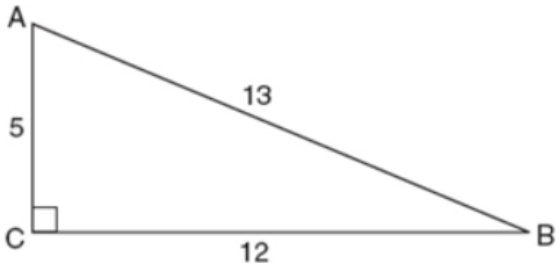

In $\Delta ABC$, $\overline{DE}$ is parallel to $\overline{BC}$. The measure of $\angle A$ is $60°$ and the measure of $\angle DEC$ is $125°$. What is the measure of $\angle B$?

a. $55°$
b. $60°$
c. $65°$
d. $70°$

12. What is the y-intercept of the line that contains the points $(3, 3)$ and $(6, -1)$?

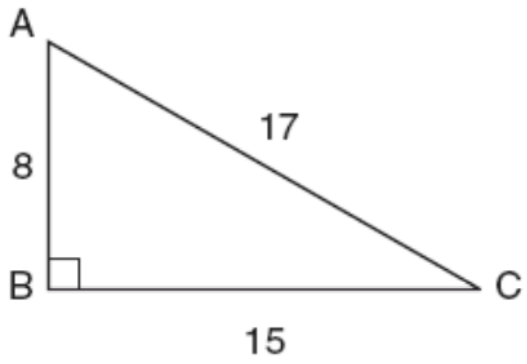
a. $5$
b. $6$
c. $7$
d. $8$

13. Which ratio represents $\cos A$ in the diagram below?




a. $\frac{5}{13}$
b. $\frac{12}{13}$
c. $\frac{12}{5}$
d. $\frac{13}{5}$

14. Which ratio represents $\tan C$ in the diagram below?




a. $\frac{8}{15}$
b. $\frac{17}{15}$
c. $\frac{8}{17}$
d. $\frac{15}{17}$

15. If $x = -2$ and $y = 3$, then $3x + y =$
    a. $3$
    b. $-3$
    c. $7$
    d. $-7$

16. When simplified, $\frac{9a+6a^2}{3a} =$
    a. $15a$
    b. $9a^2$
    c. $3 + 2a^2$
    d. $3 + 2a$
    e. $3 + 6a$

17. If $x = 2$ and $y = -4$, then $|x + y| =$
    a. $2$
    b. $-2$
    c. $6$
    d. $-6$
    e. $8$

18. If $\frac{5}{x} = \frac{9}{7}$, then $x =$
    a. $\frac{45}{7}$
    b. $\frac{7}{45}$
    c. $\frac{14}{5}$
    d. $\frac{9}{35}$
    e. $\frac{35}{9}$

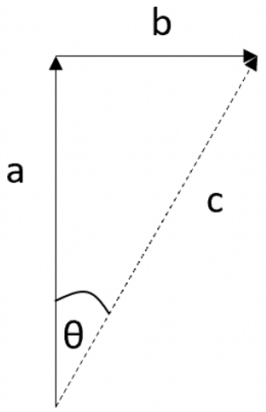
19. The graph of $3x - 2y - 4 = 0$ crosses the $y - axis$ at $y =$
    a. $2$
    b. $4$
    c. $-2$
    d. $-4$
    e. $-6$

20. The symbol $\approx$ means $approximately\ equal\ to$. Given that $4^6 \approx 4{,}000$, then $4^{12} \approx$
    a. $8000$
    b. $80{,}000$
    c. $800{,}000$
    d. $16{,}000$
    e. $16{,}000{,}000$

21. $\sin 90°$ is equal to
    a. 0
    b. 1
    c. $\frac{1}{2}$
    d. -1
    e. Undefined

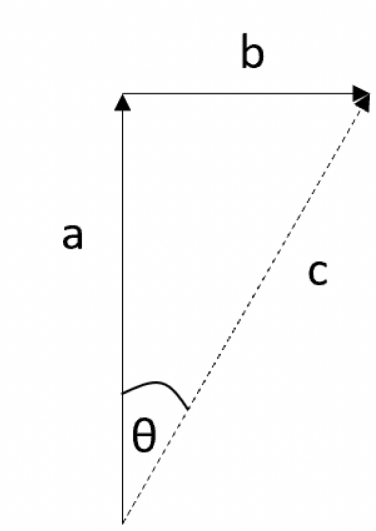
22. In the right triangle in the figure, $b =$

a. $c \cos\theta$
b. $c \tan\theta$
c. $c \sin\theta$
d. $c \ \sin^{-1}\theta$

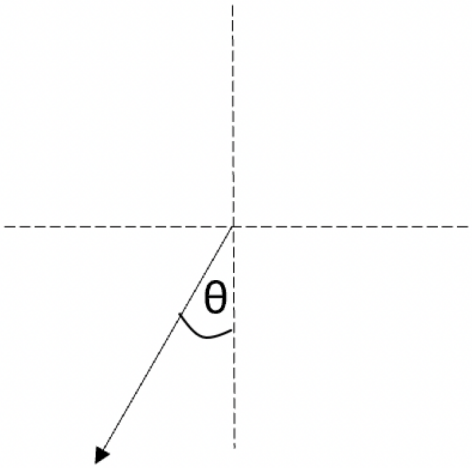



23. In the right triangle in the figure, $c$ can be calculated as

a. $\sqrt{a^2 + b^2}$
b. $\sqrt{a^2} + \sqrt{b^2}$
c. $\tan^{-1}\left(\frac{b}{a}\right)$
d. $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$



24. If $\theta$ is equal to $30°$, how many degrees from true north is this vector pointing in the clockwise direction?
    a. $120°$
    b. $150°$
    c. $210°$
    d. $240°$




25. In a right-angle triangle with sides of lengths 3 cm and 4 cm, what is the length of the hypotenuse?
    a. $2\ cm$
    b. $6\ cm$
    c. $8\ cm$
    d. $5\ cm$

ANSWER KEY

| Number | Correct Answer |
|---|---|
| 1 | C |
| 2 | B |
| 3 | D |
| 4 | B |
| 5 | B |
| 6 | A |
| 7 | D |
| 8 | B |
| 9 | A |
| 10 | D |
| 11 | C |
| 12 | C |
| 13 | A |
| 14 | A |
| 15 | B |
| 16 | D |
| 17 | A |
| 18 | E |
| 19 | C |
| 20 | E |
| 21 | B |
| 22 | C |
| 23 | A |
| 24 | C |
| 25 | D |